

# Did You

by Ltjg. Loren Romeus

Our business was hauling cargo, and business was good, supporting the numerous operations spawned by the Kosovo crisis. The Adriatic and Ionian Seas swarmed with ships clamoring for passengers, mail, and cargo, and we were more than happy to oblige. Our detachment of two MH-53Es was making hits out of Bari, Italy, to several ships off the coast of Albania just about every day. So far, this day was no different. We had dropped off a full load of cargo and were heading back to the beach empty except for a few passengers.

The HAC had the controls in the left seat, so I mustered the courage to sample one of the box lunches scalped from the combat-cargo guys on the boat. Out of habit, I scanned the gauges thoroughly before diverting my attention to a non-flying task for a few minutes. Hmmm, 500 feet, 150 knots, about 40 miles to go, all gauges normal. One of our passengers, a reserve commander and former P-3 pilot, hopped up in the jump seat between the pilots. He wasn't on ICS, so conversation was limited to pointing, nodding and the universal hand signals that all pilots pick up along the way to relate their best "there I was" stories.

Just as I popped open a can of grape juice, a strong yaw kick jolted the airframe. I can't think of any situation in any aircraft where an uncommanded yaw kick is a good thing, but in a helo with a tail rotor over open water, it is bad juju. The commander must have thought so, too, because he came off the jump seat like a scalded cat, scampered across the cabin, and was strapping in before anyone else could move a muscle. Somebody might have said, "Whoa, what was that?" over the ICS, but it wasn't really necessary; the helicopter suddenly had our undivided attention.

Still holding my juice, I checked the gauges. The engine torques were erratic, but which one was the problem? One of the two aircrewmembers was leaning over the jump seat giving another pair of eyes. I knew that communication was critical

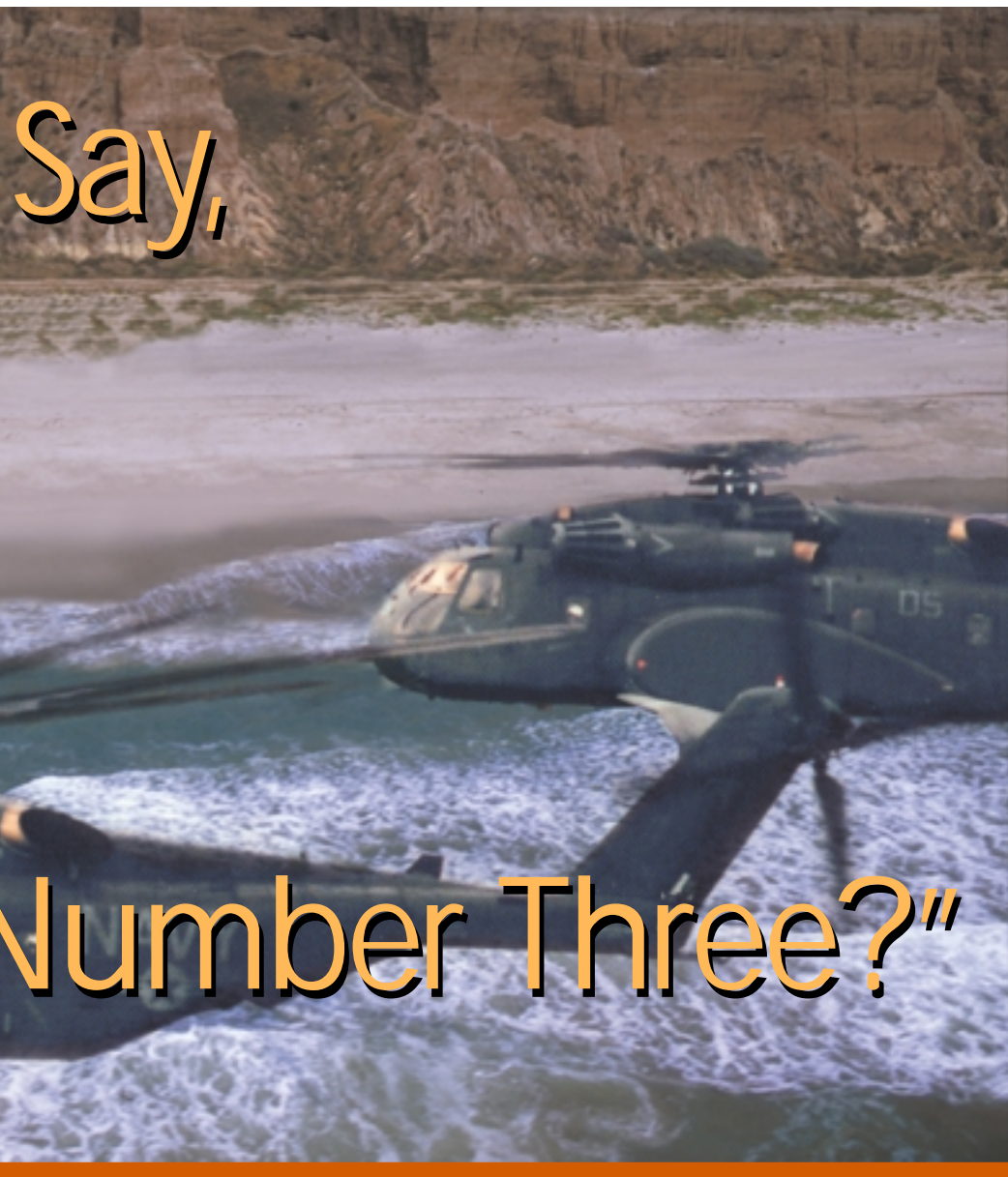
# "Bring Back M

in an emergency situation, but since I wasn't making any sense out of what I was seeing, I had nothing to say.

"Bring back number three," the HAC said suddenly. My eyes snapped to the No. 3 engine instruments and I thought, "He must be wrong, number three is still pulling strong." I set down my juice and reached for the No. 3 speed-control lever but didn't move it.

We had briefed that we would get dual concurrence before securing an engine, and at this point I did not concur. I was about to voice my concern when the HAC called, this time more forcefully, "Bring back the number three engine!"

I hesitated. All three engines were running, albeit erratically. I saw no reason to secure any of them, but obviously something was wrong. I decided to trust the



Say,

Number Three?"

superior knowledge and experience of my HAC and assume he had seen something I had not, so I slid the No. 3 engine back to ground idle. Almost immediately, the ICS squawked again as he said frantically, "Bring it back up!" It was obvious he was frustrated and fighting to remain calm.

I quickly complied, still wondering what I had missed when the ICS went quiet, and the entire instrument panel and center console dropped dead. Total electrical failure.

The MH-53E NATOPS warns, "Helicopter response to a total electrical loss may be violent." It wasn't kidding. The pilot had his hands full as both AFCS computers kicked offline, and the helicopter sloshed around and started descending, narrowing that precious gap between us and the water below.

"We're going swimming," I thought as I reached up and began cycling the generator switches. Long, anxious, lonely seconds ticked by. Unable to communicate with each other and not knowing what exactly had happened, we found ourselves separated and fighting an enemy we couldn't identify.

A few lights came back on, and a few gauges spun up on the instrument panel. I kept working the switches until I had all three generators back on-line. A familiar, low static started buzzing again in my helmet, assuring me the ICS was back up. Things didn't seem quite right, though, so I tapped my foot switch and ventured, "Hey, it looks like we still don't have DC power."

"Check the circuit breakers," the HAC replied.

"I'm already on it. Rectifier circuit breakers are popped. Resetting," came the word from the back, accompanied by all the right lights and gauges.

Checking the center console, I reactivated the AFCS computers, turned on AFCS and trim, and armed the servos. Deep breath. "OK," I thought, "let's take stock of the situation." The HAC had stopped the descent during the electrical failure and had climbed to get us away from the water. We were now climbing through 1,000 feet at about 100 knots, and all the engine instruments had settled down. We seemed to be out of the forest for the moment. However, the No. 1 engine was now running at below ground idle with the speed control nearly full forward. Very odd.

About 30 seconds later, the engine surged back to 100 percent by itself and resumed normal operations.

We headed straight for land and followed the coast back up to Bari (a tense half hour, I can assure you), and

The pilot had his hands full as both AFCS computers kicked offline, and the helicopter sloshed around and started descending, narrowing that precious gap between us and the water below.

returned to terra firma without incident. There were considerable speculation and discussion among the crew, but none of us could formulate any reasonable explanation of what had gone wrong. Once back on the deck with all of our passengers offloaded and after consulting with QA, we brought each engine back to idle individually and ran it back up to 100 percent. They all worked fine. We then shut them down and restarted them. They all worked fine.

With no answers presenting themselves and questions piling up fast, we just shut down and reinspected everything visually. It took only a few minutes to find the culprit: a compressor blade in the No. 1 engine had detached and gone back through the rest of the engine, wreaking havoc along the way.

After clapping each other on the back and rejoicing that we had avoided testing the value of our underwater-egress training, we all sat down and went over what we remembered. Evidently, the load-sharing configuration of the engines caused the other two engines to cycle when the No. 1 engine started acting up. The HAC explained that when all the engines were cycling erratically, he had noticed the No. 3 engine exceeding its turbine-temperature limitations so he wanted me to nudge it back a hair, not yank it back to idle. That explained a few things. Unfortunately, that was about the only question that was successfully answered.

I may never know what made that compressor blade fail, the damaged engine run at idle for a while then reengage, the

electrical failure occur, or the reserve commander move so quickly. However, I did learn some valuable things about dealing with emergencies.

First, not everything falls in the category of a documented NATOPS emergency with a cut-and-dried emergency procedure. The better you know your aircraft and its systems, the better equipped you will be to deal with those odd emergencies.

Also, communication in an emergency must be clear and concise. My misunderstanding of the HAC's command to "Bring back number three" was nearly catastrophic. It never even occurred to me that he meant anything, other than pulling an engine all the way back to idle. There isn't time to question, double check, and clarify things during an emergency. That's where the NATOPS brief comes in. Even though our NATOPS brief had not addressed our specific incident, it governed our actions in a tight situation and just may have saved our lives. Each crew member did what he was supposed to quickly and efficiently without having to be told. The crew chief stepped up to the jump seat to back up the pilots on the gauges and have access to the circuit-breaker panels.

The second crewman quickly checked the engines for visible damage and staged the raft in preparation for evacuation. Most importantly, the NATOPS brief also prevented our communication problem from making a bad situation worse. We had briefed that besides getting dual confirmation, we would pause the engine in idle before completely shutting it off, allowing us to reconfirm that we wanted to secure it. That pause in idle kept us from securing a good engine while the bad engine was chewing itself up. 🦅

Ltjg. Romeus flies with HC-4.